

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1, 3-4, 6-8, and 10-14 are pending in the application. Claims 1, 3, 4 and 8 are amended by the present amendment. Support for the amended claims can be found in the original specification, claims and drawings.¹ No new matter is presented. Claim 14 is withdrawn by the present amendment.

In the outstanding Office Action, Fig. 1 was objected to because of a minor informality; and Claims 1, 3, 4, 6-8, and 10-13 were rejected under 35 U.S.C. § 103(a) as unpatentable over Takeshi (JP Pub. No. 11273126) in view of Nuss (U.S. Patent No. 5,789,750), and further in view of Corle et al. (U.S. Patent No. 5,125,750).

The undersigned appreciatively acknowledges the courtesy extended by Examiner Danielsen and Supervisory Patent Examiner Young by holding a personal interview with the undersigned on August 23, 2007. During the interview an overview of the claimed invention was presented and proposed claim amendments were discussed that Examiner Danielsen agreed would overcome the rejection with respect to Fig. 5 of the Corle et al. reference. The claim amendments discussed during the interview are incorporated into independent Claims 1, 3, 4, and 8, as discussed below.

In the outstanding Office Action, Fig. 1 was objected to for not being designated as "Prior Art" because the outstanding Office Action asserts only that which is old is illustrated. Applicant respectfully traverses this objection as Fig. 1 depicts the configuration in which the claimed optical lens and pickup system of the claimed invention may be implemented. Specifically, pp. 16-17 clearly describe that Fig. 1 is applicable to many of the embodiments disclosed in the specification.

¹ E.g., specification, Fig. 8 and p. 24, line 24 – p. 25, line 5.

Accordingly, Applicant respectfully requests that the objection to the drawings be withdrawn.

Claims 1, 3, 4, 6-8, and 10-13 were rejected under 35 U.S.C. § 103 as unpatentable over Takeshi in view of Nuss and Corle et al. In response to this rejection, Applicant respectfully submits that amended independent Claims 1, 3, 4, and 8 recite novel features clearly not taught or rendered obvious by the applied references.

Specifically, amended independent Claim 1 recites an optical lens, comprising:

an optical material comprising an SiC single crystal
having a cubic structure;
a conical objective surface; and
a convex spherical surface formed opposite said conical
objective surface,
***wherein the center of the uppermost portion of the
lens does not extend beyond a radius of the convex spherical
surface from the center of the lowermost portion of the lens.***

Independent Claims 3, 4, and 8, while directed to alternative embodiments, are amended to recite substantially similar features. Accordingly, the remarks and arguments presented below are applicable to each of independent Claims 1, 3, 4, and 8.

As depicted in an exemplary embodiment at Fig. 8 and described at p. 24, line 24 – p. 25, line 5, the top surface of the lens does not extend beyond a radius of the convex spherical surface from the bottom of the lens. In other words, the conical objective surface is formed by working the flat objective surface of a semispherical optical lens (e.g., a lens formed by half of a sphere) which is depicted in Fig. 6.

In rejecting independent Claims 1, 3, 4, and 8, the Office Action cites Takeshi and Nuss as disclosing Applicant's invention with the exception of an optical lens comprising a conical objective surface, and a convex spherical surface formed opposite said conical objective surface. In an attempt to remedy this deficiency, the Official Action cites Corle et al. and states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references to arrive at Applicant's claims.

Applicant respectfully submits that independent Claims 1, 3, 4, and 8 recite novel features directed to the lens which are neither taught, nor rendered obvious by the applied references.

Corle et al. describes an optical recording system including read/write optical assembly including an objective lens for reading or writing from an optical medium including a solid immersion lens disposed between the objective lens and having a surface closely spaced from the recording medium.²

Corle et al., however, fails to teach or suggest an optical lens including a conical objective surface and a convex spherical surface formed opposite the conical objective surface wherein *the center of the uppermost portion of the lens does not extend beyond a radius of the convex spherical surface from the center of the lowermost portion of the lens*, as recited in amended independent Claim 1.

More particularly, in rejecting the features directed to the structure of the lens, the outstanding Office Action relies on Figs. 5A-B of Corle et al. This cited portion of Corle et al. clearly depicts a lens structure in which the flat lower portion of the lens is well beyond what would be a radial distance from the upper convex spherical surface of the lens. Therefore, as agreed upon during the interview, the structure of the lens as clarified in independent Claim 1 patentably defines over Figs. 5A and Fig. 5B of Corle et al.

During the interview, however, Examiner Danielsen noted Figs. 1 and 2 of Corle et al., and stated that the lenses depicted therein closely resemble a semispherical optical lens with a conical objective surface as presented in Claim 1 as proposed. However, a close inspection of Figs. 1 and 2 of Corle et al. reveals that these are in fact lenses having a conical objective surface which are formed from a flat surface of a super-semispherical optical lens, such as that depicted in Fig. 9 of the present specification. More specifically, when the outer circumference of the convex spherical surface in Figs. 1 and 2 of Corle et al. are extrapolated

² Corle et al., Abstract.

and extended to reach the top surface of the lens it is clear that this top surface extends beyond a radial distance of the convex spherical surface from the top portion of the convex spherical surface to the lower flat portion of the lens. Therefore, Figs. 1 and 2, similar to Figs. 5A and 5B of Corle et al., show a conical objective surface formed by tapering the flat objective surface of a super-semispherical optical lens such as that depicted in Fig. 9 of the present specification.

Accordingly, Corle et al. fails to teach a lens having a conical objective surface and a convex spherical surface formed opposite the conical objective surface wherein *the center of the uppermost portion of the lens does not extend beyond a radius of the convex spherical surface from the center of the lowermost portion of the lens*, as recited in amended independent Claim 1.

Further, as noted above, neither Takeshi nor Nuss teach or suggest the structure of the lens as recited in amended independent Claim 1.

Accordingly, Applicant respectfully requests the rejection of Claims 1, 3, 4, and 8 (and the claims that depend therefrom) under 35 U.S.C. § 103 be withdrawn.

Consequently, in view of the present amendment and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 1, 3-4, 6-8, and

10-13 is patentably distinguishing over the applied references. The present application is therefore believed to be in condition for formal allowance and an early and favorable reconsideration of the application is therefore requested.

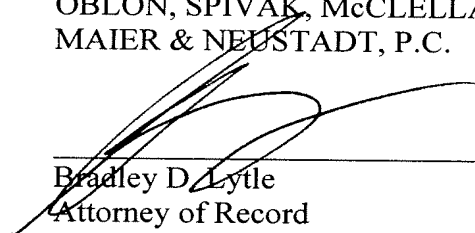
Respectfully submitted,

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